**A Non-Linear Model of Human Development:**
**Implications for Assessment**

**By Dr. Kathleen E. Allen**
**President**
**Allen and Associates**

This paper will discuss new theories on adult development that challenge our conventional assumptions about human development.   It will share some of the current ideas about the process of development and present an emergent paradigm of non-linear development.  Then it will examine some of the reasons why our theories are evolving. Finally it will discuss the inadequacy of our present assessment techniques in light of these findings and suggest a new way to think about the assessment of human development outcomes.

## Some History and Definition of Terms

The concept of human development has been a part of student affairs and higher education for the past twenty years.  Human development consists of theories that include cognitive, moral, ego, self concept, and identity development, as well as process models that describe how development occurs.  One example of the kind of outcomes that the term "human development" might cover comes from Chickering's Theory (1969).  They are development competence, managing of emotions, developing autonomy, establishing identify, freeing interpersonal relationships, development purpose, and developing integrity.  Chickering is one of the most referenced authors in part because the Human developmental Task Inventory (Miller, Prince & Winston, 1975) was based on his theory.

In addition to Chickering's vectors of development, Kohlberg's (1971) moral development, Perry's (1970) intellectual development, and Erikson's (1968) identity development all contributed to our initial concepts of human development.

Miller and Prince in 1977 defined human development as the application of human development concepts in post secondary settings so that everyone involved can master increasingly complex developmental tasks, achieve self direction, and become interdependent.  This definition reflects the impact of adult developmental theory on human development.  The underlying assumptions about adult development in 1977 stated that development was a sequential, orderly, and cumulative process (Erikson, 1977; Garb, 1981; Gould, 1978; Levinson, 1978).

These assumptions shaped our study and our assessment of development.  When we studied development, we looked for an orderly and sequential developmental pattern in the adult years.  We found stages of adult development with dimensions by which they are characterized (Smelser & Erikson, 1980).  Recent studies, however, bring these initial findings into question (Baruch et al, 1983; Belenky et al, 1986; Gilligan, 1982; Josselson, 1987; Smelser & Erikson, 1980).  These new findings indicate that development may be much more individualistic, fluid, non-linear, multi-optioned, and interconnected.  In

addition, it may differ according to individually experienced external events, gender, ethnic cultures, first/second/etc. generations, and cohorts. Most of our present assessment instruments and techniques reflect assumptions that development is linear, sequential, cumulative, and orderly. In other words, our assessment techniques have not caught up with these recent findings.

Our current assessment techniques are development in production and preference formats (Mines, 1982). A production format consists of open-ended or semi-structured interviews which require students to produce a "stage typical" response. Preference and comprehensive formats have a Likert-type or multiple choice format. Each of these types of assessment techniques were designed to classify a person's developmental state level.

We have all embraced these instruments (and the assumptions behind them) as a way of measuring the results of our efforts. These instruments have helped to give us a tangible quantifiable way of measuring an outcome that is basically intangible in nature. We also found that this kind of assessment could help bring credibility to a field of practitioners who felt they were considered second class citizens in higher education. (this response is similar to the sociologists and psychologists who applied scientific methodology in studying human phenomenon in an effort to be seen as more credible in the 50's and 60's.) In addition, there were political implications. It was a way to demonstrate the importance of what we did with students outside of the classroom. Using these instruments helped us to quantify our students' development and these figures were impressive around budget allocation time.

I believe that our present instruments have served us well in the past, but will not do for the future. They have increased our awareness of the need to assess the impact of our work, provided us with well researched instruments, and have given us a body of knowledge from their use. However, these instruments model a traditional way to measure impact that may no longer fit our recent findings of how development occurs.

**The Evolution of Developmental Theory and Its Impact on Assessment**
Human development has always adapted theories and research from adult development. In recent years, there have been a series of new studies that challenge our thoughts about development. Here are some of the new themes and concepts that are appearing in the literature.

1. **Multiple pathways verses single path**: Our conventional ideas of development suggest that there is a common pattern or set of stages that occur for everyone regardless of race, creed, color, gender, or socio-economic status (Creamer, 1980; Erikson, 1968; Heath, 1968; Kohlberg, 1971: Levinson, 1978; Loevinger, 1976; Perry, 1970). Recent research suggest that there are multiple and individualistic pathways for different people (Baruch et al, 1983; Belenky et al, 1986; Gilligan, 1982; Josselson, 1987; Smelser & Erikson, 1980).

   For example Baruch et al (1983) in Life Prints: New Patterns of Love and Work For Today's Women discovered multiple patterns of development for the 3,000 women

they surveyed.  There seemed to be six themes that reflected these women's lives rather than one single theme.  Within each of these six major themes there was a great deal of individual uniqueness.  Josselson (1987) in her work entitled <u>Finding Herself: Pathways to Identity Development in Women</u> found four distinct patterns of identity development only one of which reflected the commonly held view.  Belenky et al (1986) in <u>Women's Ways of Knowing:  Cognitive Development of Women</u> found six patterns and themes that reflected distinct ways that women in their sample developed cognitively.  They further stated that these themes were not linked to sequential stages of cognitive development.  Gilligan's (1982) <u>In a Different Voice</u> identified two patterns of moral development, the ethic of care and the ethic of justice.

These multiple pathways of development do not have a positive or negative valance attached to them.  (Which means we can't place one pattern above the others and label it as better.)  Nor do they fit into a "single path" stage theory of development.

### Impact on Assessment
Our current assessment instruments and methodology are based on single, common, and linear threads of development that is applied to everyone.  Multiple pathways increase the complexity of assessment.  We all know how difficult it is to develop an instrument that tries to measure the development of students along a linear path toward cognitive, moral, or identity development.  These studies suggest that our work in assessment will have to become even more complex to match the multiple pathways of development.

2.  **Themes and patterns verses stages:**  These studies also challenge our stage theory of development.  They cause us to ask "What is the shape of development?"  Does it involve continued growth?  Is it hierarchical in nature?  Does it have distinct stages with definable boundaries?

   Traditionally, development is seen as having the shape of continued growth.  It is cumulative and sequential in nature.  Stages whether loosely or tightly defined string together a set of tasks that are increasingly complex.  Regression to a previous stage is not usually considered (Hanson, 1982).

   Our new research in adult development suggests that it is more fluid, and individualistic in nature.  People do not grow along a preconceived path but develop their own path which is affected by their cultural context, experiences, and motivations.  In addition, the paths may look like a series of circles rather than a straight line on a graph.  People may go "backwards", "forwards", "up", "down", and "around".  Whatever path they take, it will depend on the individual.

   Gleick (1987) in <u>Chaos:  Making A New Science</u> has a word for this.  He states that in a turbulent system there are underlying patterns of order.  However this underlying order can only be seen in themes and patterns, not in specifically predictable ways.  The pattern of order underlying the chaos has a "sensitive dependence on initial conditions".  Which is his way of saying that whenever you change the initial

conditions of a dynamic system (even if you are only adding a butterfly to a computer program to predict a weather pattern) the underlying pattern changes. I believe that human development is a dynamic, non-linear system and that we will need to borrow concepts from the science of chaos in order to truly understand it.

However, it seems clear that traditional stage theory is going by the wayside. If there is an underlying order to development, we may need to seek it in patterns and themes rather than specific stages that individuals go through in a specific order.

<u>**Impact on Assessment**</u>
Themes and patterns instead of specific stages have massive implications on assessment. If there are no stages then there is no preconceived "right" order to develop in. This will call into question many of our production and preference formats in our instruments. It will also challenge the assumption that we can quantify human development and set norms to measure appropriate progress.

Stage theory is hierarchical in nature. The implication is that the highest stage has the highest value to it. This helps us to transfer findings to numerical values, develop normal curves, means, standard deviations, and manipulate these scores statistically to develop national norms. Numbers help to simplify and quantify a very complex human phenomenon.

This is a benefit of stage theory where a single pattern applies to all individuals. The obvious problem is that development may no longer be this neat (that's if it ever was!)

The other problem with assessing development this way is that when people develop differently, their unique pattern is not seen. We measure what our instruments are designed to measure. If a person's developmental pattern does not reflect what the assessment instrument is measuring, the developmental pattern of that individual falls through the cracks! In other words, we loose valuable information that we could add to our understanding of development.

3. **External AND internal locus of control versus age triggered response:** What triggers development in an individual? Does development occur because we hit a specific age or because a variety of external and internal conditions combine to trigger it? Our traditional view of development tends to lean toward the idea that development is triggered internally. As we approach a specific age, various developmental tasks appear and as we grow older we work through them. It is hard to identify exactly where this assumption first took root. It is possible that this view of an adult's development was affected by our work with children where motor development and physiological growth had a significant impact on the child's development. Whatever the cause, recent research suggests that significant marker events can reshape the course of an adult's development.
This was especially seen in Baruch's (1983), Belenky's (1986), and Josselson's (1987) work. This emergent view sees development being triggered both externally

4

and internally.  An external marker event, like an unexpected divorce or death of a significant other, can trigger a whole set of different developmental tasks in individuals.

In addition to the actual external event, there is evidence that our attitude toward events and our perception of the constraints that we have, affect the choices we make. Therefore, internal perceptions, external events, age, expectations (both societal and individual), and cultural context may all shape the contour of an individual's development.  This concept supports the individualistic uniqueness of development patterns.

### Impact on Assessment

Our present assessment instruments do not tell us enough about what triggers development.  The assumption that it is somehow triggered by age sets up the linear, sequential, and cumulative measuring of development.  This (combined with quantifying results) allows us to assess students in their freshmen year, at the end of the sophomore year, and senior year to see if development did indeed take place.  All we need to prove our impact is to subtract the freshmen from senior scores and see if the difference is statistically significant!

However, if development is triggered by other events, the linear common evolution of students is called into question.  Development becomes more unique and less predetermined.  The absence of knowledge on the process of development and the complex environment and person interaction hinders our ability to think about assessment instruments that would get at the process of development.  Processes can not be quantified until all the patterns are discovered.  We have a lot to do in this area before updated instruments can even begin to deal with this issue.

4. **Cohort  patterns versus ultimate truth:**  Our traditional views of development reflect an assumption that truth is constant and doesn't change over time.  This view believes that once we gather enough knowledge, we would have a theory of development that would not change over time.  This view is being challenged by another view that suggests that there may be unique patterns of development based on generational cohorts.  A recent issues of The Chronical of Higher Education (June 14, 1989) reviewed a study asking people to identify those events they considered most important.  "People of all ages tended to choose events that occurred in their adolescence or early 20's. . . . . The student lends credence to the notion of 'generational imprinting.' the authors say:  The events of youth, because they occur when a person is beginning to be susceptible to the influences of the larger world, but has not yet formed a personal philosophy, may carry the greatest weight over the rest of one's life" (p.A5).

Adult development researchers suggest that different patterns of development may occur with different generational cohorts.  This may also explain why our initial theories on adult development were more linear in nature.  Our research may have

captures a snapshot of a point in time where expectations of adulthood were more linear and orderly in nature.

<u>**Impact on Assessment**</u>
This may mean that we may not be able to compare data over time and come up with anything meaningful. It also suggests that our assessment techniques may have to be flexible enough to accommodate changes in developmental patterns as changes in cohorts occur. This calls into question the use of quantitative instruments for three reasons. First, the creation of instruments depends on a stable theory of development, which cohort issues challenge. The second reason is that it takes time to develop valid instruments and it may not be worth the time, money and effort to develop an instrument that is obsolete due to changes in developmental theory. The third reason is that in order to track possible cohort patterns, our assessment techniques may need to be more qualitative in nature. This would allow us to both discover as well as verify developmental patterns.

5. **Holistic and interconnected versus fragmented development:** All these findings lead to another conclusion about development. That in order to understand development, we will have to study and assess it holistically. Our traditional view assumes that an individual's development can be reduced into various parts. For example: cognitive development is separate (and can be measured separately) from moral development. And that these, in turn, are separate from a person's identity and self-concept.

This view of human development is an outgrowth of Newton's influence. His mechanical determinism provides us with a machine metaphor with which to describe the world. We all know that a machine is reducible to its parts. It can be taken apart and put back together. The sum of the parts equal the whole machine. The problem with this metaphor is that it does not apply to dynamic systems. A dynamic system is more than the sum of its parts. It takes on a life of its own as all the elements of the system interact.

I believe that a human being is a dynamic system and the development of a human being is a dynamic process. Therefore, the process and the system cannot be studied as if it is a machine. We are ore than the sum of our parts. That is why philosophers over the centuries have talked about the mysteries of mind and the brain, or the spirit and the heart. This means that our study of human development and our assessment of development may need to be done holistically. We may be loosing too much, having too much fall through the cracks, when we assess things separately.

<u>**Impact on Assessment**</u>
This concept directly challenges quantitative assessment methods. By definition, quantitative assessment instruments separate out and measure the parts. While the information we get from this type of assessment can be used politically to good advantage, it may not tell us anything about what is really going on with a person's development.

If development is interconnected, that our assessment instruments will need to be more qualitative in nature. It will only be in this way that we capture the holistic nature of what we are studying (Guba & Lincoln, 1985; Kuh etal, 1987; Lincoln & Guba, 1985; Marshall & Rossman, 1989).

Developmental Paradigms
These findings suggest a paradigm shift in developmental theory. A paradigm shapes our basic way of thinking, perceiving, valuing, and doing. Our developmental paradigm influences and creates all of our basic assumptions about development. The dominant and emergent (non-linear) developmental paradigms are summarized in Figure 1.

## DEVELOPMENTAL PARADIGMS

| DOMINANT VIEW | EMERGENT VIEW |
|---|---|
| single path | multiple pathways |
| stages of development | themes and patterns |
| internally triggered | internally and externally triggered |
| developmental pattern is constant over time | cohort patterns by culture, generation, gender, etc. |
| fragmented | holistic and interconnected |

Figure 1.

The emergent view clearly challenges the assumption base of traditional developmental theory. Traditional theory suggests a set of linear (sequential, orderly, cumulative, and hierarchical) assumptions about how development occurs. The emergent view introduces a non-linear view of development. A non-linear set of assumptions would believe that developmental patterns may vary by individual history and experience, generation, culture, race, gender, and geographical location. These variations may include different developmental themes, developmental issues surfacing in a different order, greater interactive effects between developmental concepts (like identify, cognitive, moral, physical, psycho-social, etc.), and significant shifts in development due to unexpected significant external marker events.

Some Reasons on Why Our Theories Are Evolving
For some, this paper will create dissonance between their beliefs and these evolving ideas on human development. For others, it will affirm something they have intuitively known all along. And for still others, they will be sitting in their seats thinking of all the work this will mean for them. All three of these reactions (and all

the others I have missed) are valid. I can recall my own resistance to these ideas and the evolution of my own thoughts. It's taken two years and a lot of reading to get me to where I am today.

There are some reasons why these new ideas are evolving in human development. I'd like to share them with you because they present a context to understand why these ideas may be appearing now.

First, the studies that have surfaced these issues in adult development introduce a greater diversity in their samples. This diversity is in ethnic, gender, age, and socio-economic background. Their samples are made up of women, so a case could be made that these issues reflect a theory of women's development. If this is so, it doesn't change the challenges for assessment since women are at least half of the population which we are assessing. However, I believe that conclusion would be too neat for this world.

I believe that men's developmental patterns are changing along these lines also. In a panel discussion with five men (born from 1945-1955) on Levinson's work The Seasons of a Man's Life (1978), they all described a more individualistic and diverse pattern than was described in that book. Levinson's work was based on a sample of forty men (the book Passages was based on his research) who were born between 1925-1935. It is possible that the order that Levinson and his colleagues found (they first coined the concept of mid-life crisis) was a reflection of the world view of that time. Did these men reflect a developmental process that was unique to their cohort? I believe that this is possible. The other factor that may have led Levinson to depict a relatively orderly process of stages was that the researchers were also born at the same time as the men in the sample. Therefore, they shared the same cohort. How did this interact with their findings? Were they looking for order and therefore found it? I don't know the answers to these questions, but I think that it is important to ask them.

More recently books like Iron John (Bly, 1990), To Be a Man (Thompson, 1991), and Fire in the Belly (Keen, 1991) are stretching our thinking on men's developmental issues.

The other reason for this evolution of developmental theory is a change in methodology. With the exception of Baruch's (1983) work, the studies were done using qualitative research methods. By definition, this means that the quantity and diversity of data will be richer than quantitative methods. How did this methodology affect the differences in findings? I believe that the interaction between qualitative methodology and possible cohort issues allowed for these issues to surface.

Finally, the researchers in four of the studies were women. Like Levinson, do these studies reflect what the researchers are looking for? How did the interaction between women studying women affect the results? Again, I don't know the answer. I'm suggesting that truth may be elusive in development and that instead of saying that

one view is right and another is wrong, we may want to figure out how all these views could give us a greater understanding of development.

The Future View:  The Complementary Relationship Between Assessment and Developmental Research

By now, it's probably clear that our traditional views on development are undergoing a paradigm shift (Kuh et al, 1987).  That's both the good news and the bad news for people in the business of assessment.  The bad news is that we will have to rethink our approaches to assessing human development.  The good news is that it can lead to an adventure in learning.

Our theories of development are still evolving.  And if the generational cohort patterns of development are true, this will be a constant of the future.  These two issues lead us to a different relationship between development and assessment.  Idealistically, assessment provides a feedback loop to practitioners, as well as measuring results.  Assessment instruments are developed on developmental theory and hoped for outcomes.  We assess our students and provide feedback to practitioners and politicians.  The relationship is connected but independent.

The relationship of the future will need to be more interdependent in nature.  In quantum physics, there is a concept of complementary relationships.  This states that at the finite level of the universe, some things cannot be studies separately.  Their example is of an orange ball.  In a complementary relationship, the more you  know the color, the less you know the shape and the more you know the shape, the less you know the color.  The only way you can understand the color and shape is to study it holistically.  I believe that assessment and development are in a complementary relationship.

The assessment process provides us with a rich database for increasing our knowledge of what development is, how it occurs, and what the underlying patterns and uniquenesses are.  It can add to our "technology" of how to facilitate the conscious development of our students.  It has the potential to be the single more significant contributor to developmental theory.  (I know that sounds excessive and it may even be true!)  Assessment is already happening across the country.  It has access to multiple unique settings, gathering data that can help frame a greater understanding of development, how it happens, and what is occurring.

In order for this to happen, however, it will take a shift in the techniques that are used in the assessment process.  The holistic, evolving, individualistic nature of development will need assessment techniques that match.  This means that qualitative methodology will have to be used.  Yes, I know that it's messy, time consuming, frustrating, and doesn't match our political mandates to produce numbers.  However, numbers that are meaningless call into questions the value of our work.  (Not necessarily to politicians or administrators, but to ourselves!)

On the other hand, qualitative research can be an adventure in discovery, challenging, exciting, and enriching.  You could be a contributor to your campus' understanding of development and help practitioners reframe their thinking on how to be effective.  These are the idealistic reasons for qualitative assessment.  But qualitative research can also involve many people in the process of assessment and create opportunities and pockets of support for change that quantitative results rarely receive.

The choice for assessment to remain separate from human development, however, does not exist.  The two are linked, we won't understand either unless we see them together.  They are like the orange ball, the more we know about "traditional/quantitative" assessment, the less we know about the evolution of a student's development.  The reverse is also true, we need assessment to see how we can impact our students and to further our knowledge of development.

I realize that what I'm suggesting will be difficult.  There will be battles to be fought across the country as we explain that numbers do not measure our success.  We will need to get out of our offices and create partnerships with practitioners, faculty, students, and administrators.  We will be adding to our work load and giving up neat tables and graphs.  Our work will seem less visible and more intangible for a while.  We won't be able to distribute a series of surveys and feel that we've "done assessment".  However, the rewards will be there as well.  We'll spend more time in meetings, but that will be balanced out by making more friends.  We may be able to say at the end of three to five years that we really do make a difference, that we understand our students and their uniquenesses better, that education at our colleges has improved through our knowledge, and that change actually occurred.

**References**

Baruch, G., Barnett, R. & Rivers, C. (1983). <u>Life Prints:  New Patterns of Love and Work for Today's Women</u>.  New York:  New American Library.

Belenky, M.F., Clinchy, B.M., Goldberger, N.R., Tarule, J.M. (1986).  <u>Women's Ways of Knowing</u>.  New York:  Basic Books, Inc.

Bly, R. (1990), <u>Iron John:  A Book About Men</u>.  Reading MA:  Addison-Wesley.

Chickering, A., (1969).  <u>Education and Identity</u>:   San Francisco:  Jossey-Bass.

Creamer, D. G. (Ed.).  (1980).  <u>Human development in Higher Education</u>.  American College Personnel Association Media Publication No. 27.  Cincinnati, OH:  American College Personnel Association.

Franz, C. E. & White, K. M.  "Individuation and attachment in personality development:  extending Erikson's theory".  <u>Journal of Personality</u>, 53:2  June, 1985.  (pp 224-225).

Erikson, E. H. (1968).  <u>Identity, Youth, and Crisis</u>.  New York:  W. W. Norton.

Garb, E. (1981).  Human development concepts.  Paper presented at the ACU-I Region 10 Conference in Minneapolis, MN.

Gilligan, C. (1982).  <u>In a Different Voice:  Psychological Theory and  Women's Development</u>.  Cambridge, MA:  Harvard University Press.

Gleick, J.  (1987).  <u>Chaos:  Making a New Science</u>.  New York:  Penguin Books.

Guba, E. G., & Lincoln, Y.S. (1985).  <u>Effective Evaluation:  Improving the Usefulness of Evaluation Results Through Responsive and Naturalistic Approaches</u>.  San Francisco:  Jossey-Bass.

Hancock, E. (1989).  <u>The Girl Within</u>.  New York:  Fawcett  Columbine.

Hanson, G. R. (1982).  Critical issues in the assessment of human development.  In  G. R. Hanson (Ed.), <u>Measuring Human development:  New Directions for Student Services</u>, 20  (pp. 17-46).  San Francisco:  Jossey-Bass.

Hanson, G. (1991).  "The call to assessment:  What role for student affairs?".  In Beeler, K. & Hunter, D. (Eds)  <u>Puzzles and Pieces in Wonderland:  The Promise and Practice of Student Affairs Research</u>.  Washington, D.C.:  NASPA.

Josselson, R. (1987).  Finding <u>Herself:  Pathways to Identity Development in Women</u>.  San Fancisco:  Jossey-Bass.

Keen, S. (1991).  <u>Fire in the Belly:  On Being a Man</u>.  New York:  Bantam Books.

Kohlberg, L. (1971). Moral development and Moral Education. In G. S. Lesser (Ed.), Psychology and Education Practice. Glenview, Illinois: Scott, Horesman.

Kuh, G. D., Whitt, E. J., & Shedd, J.D. , (1987). Student Affairs Work, 2001: A Paradigmatic Odyssey. ACPA Media Publication No 42. Alexandria VA: American College Personnel Association.

Levinson, D., Darrow, C., Klein, E., Levinson, M., & McKee, B. (1978). The Seasons of a Man's Life. New York: Knopf.

Lincoln, Y.S. & Guba, E.G. (1985). Naturalistic Inquiry. Beveraly Hills, CA: Sage Publications.

Loevinger, J. (1976). Ego Development: Conception and Theories. San Francisco: Jossey-Bass.

Marshall, C. & Rossman, G. B. (1989). Designing Qualitative Research. Newbury Park, CA: Sage Publications.

Miller, J. B. (1984). "The development of Women's Sense of Self". Working Paper Series. The Stone Center for Developmental Services, Wellesley College, Boston, MA.

Miller, J. B. (1988). "What do we Mean by Relationships?". Working Paper Series. The Stone Center for Developmental Services, Wellesley College, Boston, MA.

Miller T. K., & Prince, J. S. (1977). The Future of Student Affairs. San Francisco: Jossey-Bass.

Mines, R. A. (1982). Human development Assessment Techniques. In G. R. Hanson (Ed.), Measuring Human development: New Directions for Student Services, 20 (pp. 17-46). San Francisco: Jossey-Bass.

Perry, W. C. (1970). Intellectual and Ethical Development in the College Years. New York: Holt, Rinehart & Winston.

Schaef, A.W. (1981). Women's Reality: An Emerging Female System in the White Male Soceity. Minneapolis, MN: Winston Press, Inc.

Schaef, A. W. (1989). Escape from Intimacy. San Francisco: Harper and Row.

Smelser, N.J., & Erikson, E. H. (Eds.) (1980). Themes of Work and Love in Adulthood. Cambridge, MA: Harvard University Press.

Thompson, K. (Ed.) (1991). To Be a Man: In Search of the Deep Masculine. Los Angeles: Tarcher, Inc.